

Please type a plus sign (+) inside this box → **+**

PTO/SOAS (08-02) Approved for use through 10/31/2002 OMB 0531-0031

U. S. Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature for form 1462P-10 <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)		<b>Complete if Known</b> Application Number: 10/809,650 Filing Date: 25 March 2004 First Named Inventor: Michel Cote et al. Group Art Unit: unknown Examiner Name: unknown Attorney Docket Number: NMTI 1002-27	
Sheet	1	of	3

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume/issue number(s), publisher, city and/or country where published.	17
	C1	SAKATA, MIWA, et al., "A Novel Radiation Sensitive Spin-on-glass Convertible into SiO2 and the Simple Fabrication Process Using It," 26 July 1993* (*ATI Bell Labs fax date), 3 pages.	
	C2	PISTOR, THOMAS V., "Rigorous 3D Simulation of Phase Defects in Alternating Phase-Shifting Masks," Proceedings of SPIE 4562-1038 (March 2002), 13 pages	
		OGAWA, KIYOSHI, et al., "Phase Defect Inspection by Differential Interference," Proceedings of SPIE 4409-71, 26 April 2001, 12 pages.	
		RHYNS, P., et al., "Characterization of Quartz Etched PSM Masks for KrF Lithography at the 100 nm node," Proceedings of SPIE 4562 (March 2002), 486-495.	
		SEWELL, HARRY, et al., "An Evaluation of the Dual Exposure Technique," (As early as 2002*), 11 pages *The date is based on references 8&9 of the article of 16 Feb 2001 and 27 Feb 2002, respectively.	
		WANG, RUOPING, et al., "Polarized Phase Shift Mask: Concept, Design, and Potential Advantages to Photolithography Process and Physical Design," Proceedings of SPIE 4754-105, 25 April 2002, 12 pages.	
		MATSUOKA, et al., "Application of Alternating Phase-Shifting Mask to 0.16um CMOS Logic Gate Patterns," SPIE Proc. 3051, March 10-14, 1997, 10 pages.	
		SEMMER, ARMIN, et al., "Application of 3D EMF Simulation for Development and Optimization of Alternating Phase Shifting Masks," Proc. of SPIE 4346-37, 1 March 2001, 12 pages.	
		WONG, ALFRED K., "Polarization Effects in Mask Transmission," Proc. of SPIE 1674, 8 March 1992, 8 pages.	
		ACKMANN, PAUL, et al., "Phase Shifting and Optical Proximity Corrections to improve C/D control on Logic Devices in Manufacturing for sub 0.35 um I-Line," Proc. of SPIE 3051-07, March 1997, 8 pages.	
		SPENCE, C., et al., "Detection of 60 degree Phase defects on Alternating PSMs," Proc. of SPIE 3412-73, April 1998, 2 pages.	

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with need communication to applicant.

1 Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

Barren Hour Statement: This form is estimated to take 2.5 hours to complete. Time will vary depending upon the results of the individual case. Any comments on this amount of time you are requested to complete this form should be sent to the Civil Information Office, U. S. Patent and Trademark Office, Washington, DC 20531. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Associate Commissioner for Patents, Washington, DC 20231.

Substitute for form 1449B-PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 2 of 3

**Complete If Known**

Application Number	10/809,650
Filing Date	25 March 2004
First Named Inventor	Michel Cote et al.
Group Art Unit	unknown
Examiner Name	unknown
Attorney Docket Number	NMTT 1002-27

**OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No. 1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, online, etc.), date, page(s), volume(issue number(s)), publisher, city and/or country where published.	17
		SUGAWARA, MINORU, et al., "Defect printability study of attenuated phase-shifting masks for specifying inspection sensitivity," Proc. SPIE 2621-49, September 1995, 16 pages.	
		SCHMIDT, REGINA, et al., "Impact of Coma on CD Control for Multiphase PSM Designs," Proc. SPIE 3334-02, February 1998, 11 pages.	
		ERDMANN, ANDREAS, "Topography effects and wave aberrations in advanced PSM-technology," Proc. SPIE 4346-36, 1 March 2001, 28 pages.	
		GRANIK, YURI et al., "CD variation analysis technique and its application to the study of PSM mask misalignment," Proc. SPIE 4186-94, September 2000, 9 pages.	
		ISHIWATA, NAOYUKI, et al., "Fabrication of Phase-Shifting Mask," Proc. SPIE 1463, March 1991, 11 pages.	
		LEVENSON, MARC D., et al., "Phase Phirst! An improved strong-PSM paradigm," Proc. SPIE 4186-42, September 2000, 10 pages.	
		LEVENSON, MARC D., et al., "SCAA mask exposures and Phase Phirst design for 110nm and below," Proc. SPIE 4346-817, September 2001, 10 pages.	
		MORIKAWA, YASUTAKA, et al., "100nm-ArF-PSM structure discussion for ArF lithography," Proc. SPIE 4409-22, April 2001, 15 pages.	
		OZAKI, T., et al., "A 0.15um KrF Lithography for 1Gb DRAM Product using Highly Printable Patterns and Thin Resist Process," 1998 Symposium on VLSI Technology, June 1998, Honolulu, Hawaii, 2 pages.	
		RONSE, KURT, et al., "Comparison of various phase shift strategies and application to 0.35 um ASIC designs," Proc. SPIE 1927, 1993, 15 pages.	
		ROSENBLUTH, ALAN E., et al., "Optimum Mask and Source Patterns to Print a Given Shape," Proc. SPIE 4346-49, 1 March 2001, 17 pages.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 608. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Unique citation designation number. 2 Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 30 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box: ☐

Approved for use through 10/31/2002. OMB 0651-0001  
U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE  
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it contains a valid OMB control number.

# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 3 of 3

## **Complete if Known**

Application Number 10/809,650  
Filing Date 25 March 2004  
First Named Inventor Michel Cote et al.  
Group Art Unit unknown  
Examiner Name unknown  
Attorney Docket Number NMTI 1002-27

## **OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume/issue number(s), publisher, city and/or country where published.	IP
		SUZUKI, AKIYOSHI, et al., "Multilevel imaging system realizing k1=0.3 lithography," Proc. SPIE 3679-36, March 1999, 13 pages.	
		VANDENBERGHE, G., et al., "(Sub-) 100nm gate patterning using 248nm alternating PSM," Mentor Graphics White Paper, May 2001, 9 pages.	
		FRITZE, M., et al., "100-nm Node Lithography With KrF?" 1 February 2001, 14 pages.	
		FUKUDA, HIROSHI, et al., "Patterning of Random Interconnects Using Double Exposure of Strong-Type PSMs," Proc. SPIE 4346-695, September 2001, 8 pages.	
		FERGUSON, RICHARD A., et al., "Pattern-Dependent Correction of Mask Topography Effects for Alternating Phase-Shifting Masks," Proc. SPIE 2440-349, May 1995, 12 pages.	
		TOUBLAN, OLIVIER, et al., "Phase and Transmission Errors Aware OPC Solution for PSM: Feasibility Demonstration," Proc. SPIE 4186-95, 13 September 2000, 7 pages.	
		YANAGISHITA, YUICHIRO, et al., "Phase-Shifting Photolithography Applicable to Real IC Patterns," Proc. SPIE 1463, 3 March 1991, 11 pages.	
		PIERRAT, C., "Investigation of Proximity Effects in Alternating Aperture Phase Shifting Masks," September 2000, 11 pages.	
		COTE, MICHEL, et al., "A Practical Application of Full-Feature Alternating Phase-Shifting Technology for a Phase-Aware Standard-Cell Design Flow," 1 June 2001, 6 pages.	
		HANYU, ISAMU, et al., "New phase-shifting mask with highly transparent SiO2 phase shifters," Proc. SPIE 1264-167, June 1990, pages 166-177.	
		MCCALLUM, MARTIN, et al., "Alternating PSM Mask Performance - A Study of Multiple Fabrication Technique Results," Proc. SPIE 4346-723, September 2001, 6 pages.	

Examiner Signature \_\_\_\_\_ Date Considered \_\_\_\_\_

\*EXAMINER: In last reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

\* Unique citation designation number. \* Applicant is to place a check mark here if English language Translation is attached.

Reason Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.